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IS 11456-1 (1985): Conference systems, Part 1: General
[LITD 7: Audio, Video and Multimedia Systems and Equipment]



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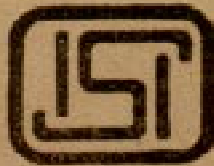
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Indian Standard
CONFERENCE SYSTEMS. *“पुनर्वष्ट १९९५”*
RE-AFFIRMED 1995
PART 1 GENERAL

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

CONFERENCE SYSTEMS

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Indian Standard

CONFERENCE SYSTEMS

PART 1 GENERAL

0. FOREWORD

0.1 This Indian Standard (Part 1) was adopted by the Indian Standards Institution on 25 September 1985, after the draft finalized by the Acoustics Sectional Committee had been approved by the Electronics and Telecommunication Division Council.

0.2 The purpose of this standard is to prescribe the minimum requirements for conference systems in order to ensure interchangeability and optimum performance under conditions of normal operation.

0.3 This standard will facilitate the determination of quality of conference systems, the comparison of different systems and the determination of their proper application by listing the characteristics which are useful for their specification. In this standard, the word 'quality' is intended to denote mainly electroacoustical quality, such as intelligibility, freedom from interference, and not the quality from the point of view of safety, durability, resistance to environmental conditions, etc. Quality will be judged from the point of view of the user (interpreter, delegates, etc), who is concerned with the characteristics of system as a whole and not as a rule, with design details or components.

0.4 The use of this standard, both by the manufacturers and users will facilitate comparison between manufacturers' specifications and user requirements for a particular system.

NOTE — It is recognized that some operators may have to continue to operate existing systems, within a limited period of transition, however it is desirable that some existing conference systems be replaced by systems conforming to this standard.

0.5 This standard will comprise the following two parts:

Part 1 General

Part 2 Electrical requirements

0.6 While preparing this standard assistance has been derived from IEC 29B (Secretariat) 218 'Draft — IEC Publication Conference System: Part 1 General' issued by the International Electrotechnical Commission (IEC).

0.7 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard (Part 1) applies to conference systems and to the parts of which they are composed or which are used as auxiliaries to such systems. A conference system may consist of:

- a) Microphone systems:
 - i) conference microphone system (CMS);
 - ii) conference discussion system (CDS);
- b) Conference interpretation systems (CIS); and
- c) Conference voting systems (CVS).

The systems described in this standard refer to both wired and wireless systems.

2. TERMINOLOGY AND EXPLANATION OF TERMS

2.0 For the purpose of this standard the terms and definitions given in IS : 1885 (Part 3)† shall apply, in addition to the following.

2.1 Persons

2.1.1 Delegate — A person participating in a conference having the facilities of a conference system to speak and listen.

2.1.2 Interpreter — A person who interprets a spoken language into one or more other languages via the interpretation system.

2.1.3 Operator — A person operating the control equipment and the audio/visual equipment, changing tapes on taperecorders and monitoring quality of sound to the interpreters and delegates.

2.1.4 Technician — A person who is trained in the diagnosis and repair of equipment faults and who can in addition perform the functions of an operator.

*Rules for rounding off numerical values (revised).

†Electrotechnical vocabulary: Part 3 Acoustics.

2.1.5 Audience — Persons not actively participating in the conference, having only the facility for listening.

2.2 Earphones

2.2.1 Earphone — Electroacoustic transducer by which acoustic oscillations are obtained from electric signals and intended to be closely coupled acoustically to the ear.

2.2.2 Headphone — Assembly of one or two earphones on a headband.

2.2.3 Headset — Assembly of a microphone and one or two earphones on a headband.

2.2.4 Insert Earphone — Small earphone that fits either in the outer ear or is attached directly to a connecting element for example earmould inserted into the ear canal.

2.2.5 Supraural Earphone — Earphone applied externally to the outer ear.

2.2.6 Circumaural Earphone — Earphone having a cavity large enough to cover the region of the head including the ear.

2.2.7 Ear Shell — Circumaural type of earphone hanging on the ear.

2.2.8 Stethoscopic Headphone — Headphone by which the earphone is remotely coupled to the ears by means of a tube.

2.3 Microphones

2.3.1 Microphone — Electroacoustical transducer by which electrical signals are obtained from acoustical oscillations.

2.3.2 Omnidirectional Microphones — Microphone the response of which is substantially independent of the direction of sound incidence.

2.3.3 Directional Microphone — Microphone the response of which is dependent on the direction of sound incidence.

2.3.4 Unidirectional Microphone — Directional microphone the response of which has a prominent maximum for one direction of the sound wave.

2.4 Channels

2.4.1 Floor Channel

2.4.1.1 The floor channel is the audio channel through which the speech of the speaker (delegate, chairman or lecturer) is distributed.

2.4.1.2 The floor channel shall be designated by 'O' or 'OR' (original) on all channel selectors or Simultaneous Interpretation System (SIS) and Language Distribution System (LDS) equipment.

NOTE — If 'O' indicates the 'OFF' position of the selector channel, the indicators 'OR' shall be used for floor channel.

2.4.1.3 A language channel may also serve to distribute the floor language whenever that language coincides with the one assigned to that channel.

2.4.2 Language Channel

2.4.2.1 A language channel is an audio channel through which an assigned language is distributed.

2.4.2.2 Language channels shall be designated by the numbers 1, 2, 3, on all channel selectors of the Simultaneous Interpretation System (SIS) and Language Distribution System (LDS) equipment.

2.4.2.3 *Call channel* — The channel through which warning signals are transmitted from the interpreter to the chairman or lecturer or operator, or from the operator to the chairman or lecturer.

2.5 Systems

2.5.1 *Automatic System* — In an automatic system the microphones are operated by the delegates. A Conference Interpretation Systems (CIS) may preferably be supervised by the operator.

2.5.2 *Manual Systems* — In a manual system the microphones are operated and controlled by the operator.

2.6 Conference Room Configurations

2.6.1 *'Round Table' Configuration* — The delegates are positioned around a table or a set of tables. All delegates are able to take part in the conference.

2.6.2 *Seminar Configuration* — A lecturer can deliver his speech from a lectern facing the audience. There may also be a table for a chairman of a panel. The delegates are positioned, facing the front of the room. The lecturer and if present the chairman or the panel as well as the delegates are able to take continuous part in the discussion.

2.6.3 *'Lecture' Configuration* — A lecturer can deliver his speech from a lectern or a table facing the audience. There may also be a table for a chairman or a panel. The lecturer and if present the chairman or the panel are able to take continuously part in the discussions; the audience has a limited possibility for question and discussion.

2.6.4 *Press Conference Configuration* — The speaker can deliver the speech from a table at the front of the room to the participants, who have a limited possibility for questions and discussions.

2.6.5 Parliament Configuration — A lecturer can deliver his speech from a lectern at the front of the room. The delegates are positioned, facing the front of the room. The lecturer can present his speech to the delegates, who have possibility for questions and discussion.

2.7 Typical Conference Systems

2.7.0 The following typical conference systems are recognized:

- a) Microphone Systems, CMS and CDS (2.7.1)
- b) Conference Interpretation Systems, CIS (2.7.2)
- c) Language Distribution Systems, LDS (2.7.3)
- d) Conference Voting Systems, CVS (2.7.4)

2.7.0.1 General — Three different types of installations can be recognized:

- a) **Permanent Installations** — In permanent installations the furniture and cabling are fixed and the systems components integrated.
- b) **Semi-Permanent Installations** — In semi-permanent installations the furniture is portable or fixed, the cabling is fixed and the system components are either integrated into the furniture or placed on tables.
- c) **Portable Installations** — In portable systems all systems components, including cables, are pluggable and removable.

2.7.1 Microphone Systems

2.7.1.1 Conference Microphone Systems, CMS — A CMS is a single channel sound system with centralized control which allows all delegates to participate in the conference. The number of microphones in such a system is usually small in relation to the number of delegates. The microphones normally used are of all types.

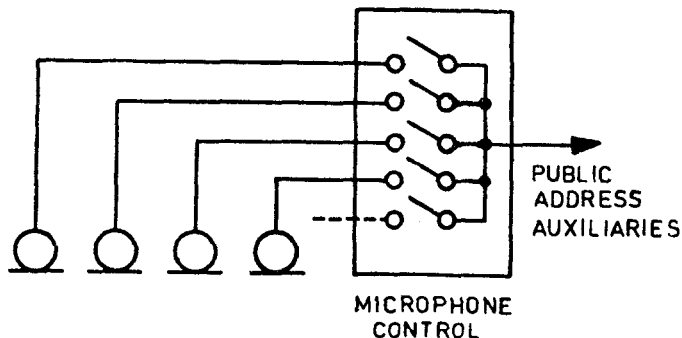


FIG. 1 CONFERENCE MICROPHONE SYSTEM-CMS

2.7.1.2 Conference Discussion System, CDS — A CDS is a single channel sound system with either decentralized *AUTOMATIC*, or centralized *MANUAL* functions for microphone control for the delegates and for the chairman.

In such a system all participants involved in the discussions have ready access to a microphone from their seats. Usually the sound reinforcement is decentralized, consisting of low level loudspeakers situated generally no farther than 1 metre from any delegate. Centralized sound reinforcement; (a public address system) may also be used and should be provided for observers.

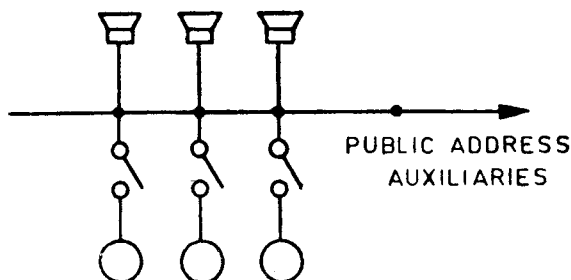


FIG. 2 CONFERENCE DISCUSSION SYSTEM-CDS

In both of the above systems, CMS and CDS, several microphones may be operated at the same time; this should not produce a significant drop in level. Both systems should include outputs for audio recording (tape or cassette) and for connection to a public address system. Inter-connection facilities for TV, Press, Media sound distribution centres (MSDC), telephone conferences and simultaneous interpretation system (SIS) are also advisable.

2.7.2 Conference Interpretation Systems, CIS — A CIS is formed by combining a microphone systems (CMS/CDS), interpreters equipment and a single or multichannel language distribution system (LDS). Two types of CIS exist.

2.7.2.1 Single channel CIS — In a single channel CIS interpretation is distributed via a single LDS channel to the delegates, while the floor may be distributed via a public address system. As a consequence, a maximum of two languages can be used. (See Fig. 3a.)

The number of delegates microphones operational at any time should be limited to one.

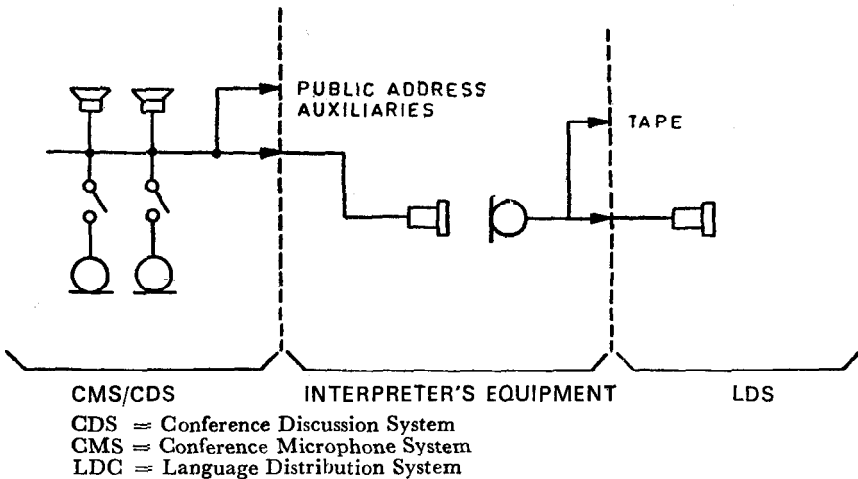


FIG. 3a CONFERENCE INTERPRETATION SYSTEM—SINGLE CHANNEL

2.7.2.2 Multi-channel CIS — In a multi-channel, CIS interpretation and the floor channel are distributed via their individual LDS channels to the delegates. As a consequence, more than two languages can be used with a maximum dependent on the number of channels available. (See Fig. 3b.)

The number of delegates microphones operational at any time should be limited to one.

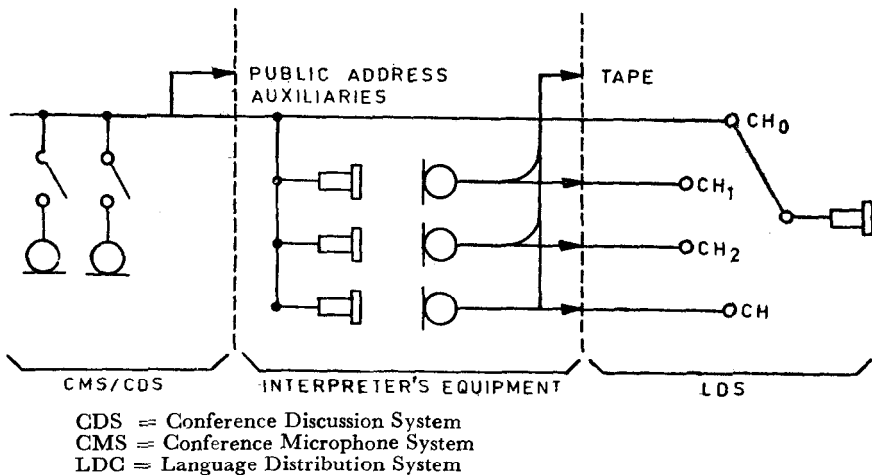


FIG. 3b CONFERENCE INTERPRETATION—SYSTEM MULTI CHANNEL

2.7.3 Language Distribution System (LDS)

2.7.3.1 In the single channel CIS the LDS serves to distribute the interpretation from the interpreters to the delegates.

2.7.3.2 In the multi-channel CIS the LDS serves to distribute the floor language (original) and the interpreted language(s) from the speaker and the interpreters to the delegates. It is necessary to have for each interpreted language its own language channel. It is advisable to have additionally a spare channel.

2.7.3.3 Various types of LDS are used, falling into two main categories:

- a) Wired
- b) Wireless (induction, radio, infrared)

2.7.4 Conference Voting System, CVS

2.7.4.1 A CVS is a centrally controlled data processing system linked to a decentralized voting terminal network. Each voting terminal is equipped with at least three selection possibilities—Yes, No and Abstain.

2.7.4.2 The central control allows the chairman/operator to select and to start the voting procedure. At the end of a vote the final totalized results will be clearly displayed to the chairman/operator/delegates.

2.7.4.3 Standard voting procedures are:

- a) Secret/closed vote No identification of individual votes.
- b) Open vote Identification of individual voters and how each individual voted.

2.7.4.4 The display of the results may be selectable, the options being:

- a) *Direct display* — Interim results are displayed while vote is taking place. Upon conclusions of preselected voting time final results are displayed.
- b) *Delayed display* — No interim results are displayed. Final results of the vote are displayed only upon expiration of the predetermined voting time.

2.7.4.5 The duration of the vote shall be preselectable, and will be limited (that is 30s, 60s, 90s,.....etc) or unlimited (that is chairman determines conclusion of voting).

2.7.4.6 Recommended accessories are:

- a) Large displays (visible to all delegates) to display the summed and/or individual results.

- b) Video displays to display the totalized and/or individual results
- c) Printers for hardcopy documentation of all voting data, summed and/or individual results.

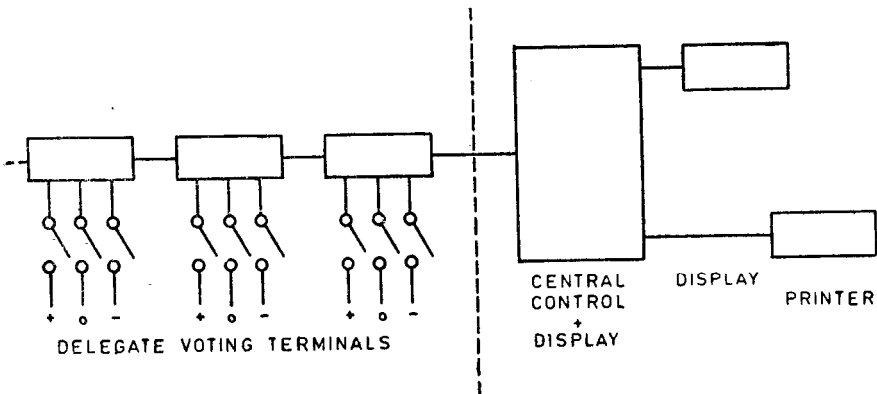


FIG. 4 CONFERENCE VOTING SYSTEM, CVS

3. REQUIREMENTS OF THE EQUIPMENT

3.1 General

3.1.1 The components and the equipment used in the conference system shall conform to the relevant Indian Standards.

3.1.2 Indicators

3.1.2.1 Colour code

The following colours shall be used for indicator lights or light-emitting diodes (LEDs) on typical conference system components.

Colour	Function
red	Microphone ON
	no luminant should be used to indicate the microphone off status
red	Outgoing channel, occupied
green or yellow	other functions

3.1.2.2 Size and brightness — Under consideration.

3.2 Microphone Systems (CMS and CDS)**3.2.1 General**

3.2.1.1 In order to effectively participate in conference proceeding delegate microphone shall be provided.

3.2.1.2 In connection with the CMS systems (manual controlled) preferably the following microphones are used:

- a) table/standing microphones
- b) floor (standing) microphones
- c) podium/lectern (standing table) microphones
- d) button/lavalier (neck) microphones
- e) boom (movable) microphones
- f) roving (hand held) microphones

3.2.1.3 In connection with the CDS systems (automatic or manual controlled) the following microphones are used:

- a) table/standing microphones or
- b) floor (standing) microphones.

3.2.1.4 The types of the microphones to be used are dependent on the conference room configuration (*see 2.6*). The following microphone application is preferred:

TYPE OF MICRO- PHONE	CONFERENCE ROOM CONFIGURA- TION	ROUND TABLE	SEMINAR	LECTURER	PRESS CON- FERENCE	PARLIA- MENT
Table		D	P/D	P	P	(D) P
Lectern			L	L	L	L
Button/Lavalier	(A)	(P)	(P)	(P)		
Floor			A		A	D
Boom/Roving				(A)		
L = Lecturer, D = Delegates, A = Audience, P = Panel, and () = Optional						

3.2.2 Functions for CDS Table Microphones

3.2.2.1 Chairman/Delegate Microphone Controls

- a) A microphone operation push-button switch is required on all chairman and delegate microphone units for automatic system.
- b) A request push-button switch is required on all delegate microphone units for manual controlled systems, if the hard-up procedure is not used.
- c) A priority push-button switch is recommended for all chairman microphone units.

3.2.2.2 The optional loudspeaker integrated in the microphone unit shall produce the floor channel at an adequate level for one or two delegates.

3.2.2.3 A microphone status indicator is required on all types of microphone units, to make the speaker aware that his microphone is 'ON'. It may also assist the chairman, other delegates, interpreters and the operator to locate the position of the speaker.

3.3 Interpreter's Equipment

3.3.1 General

3.3.1.1 In each interpreter's both separate control for listening and speaking together with corresponding indicators shall be provided for each interpreter.

3.3.1.2 The control panel/unit shall be situated between the front window and the working surface so as to occupy a minimum area. It shall not obstruct the view to the hall nor encumber the working surface.

NOTE — Adequate acoustic isolation shall be provided between the interpreters booth.

3.3.2 Functions and Controls

- a) Only the functions and controls in **3.3.2.3**, **3.3.2.4**, **3.3.2.5**, **3.3.2.9** and **3.3.2.10** shall be applicable to Single Channel Conference Interpretation Systems.
- b) All functions and controls as outlined below are applicable to Multi-channel Conference Interpretation Systems.

3.3.2.1 Incoming channel selector — Selectors shall operate smoothly and cause no mechanical or electrical noise. No short-circuiting shall occur between two channels when operating these controls.

3.3.2.2 Incoming channel pre-selector — In order to ensure safe and instantaneous changeover from floor to relay channel a toggle (lever) switch shall be provided which normally supplies the original (floor) channel and, in its relay position, the channel set on the selector.

3.3.2.3 Volume control — For adjusting listening levels, potentiometers with logarithmic progression shall be used which are audibly effective throughout their full range.

3.3.2.4 Tone control — A stepless bass control shall be provided to depress the lower frequencies by at least 12 dB at 125 Hz with respect to 1 kHz. A stepless treble control may also be provided to enhance higher frequencies by at least 12 dB at 8 000 Hz with respect to 1 kHz.

3.3.2.5 Headphone/headset terminals — For each interpreter one headphone/headset connector socket is required, suitably placed under the working surface and to the left of the working position in permanent installations or on the interpreters control console in portable installations. The output terminals shall be protected against short-circuit.

3.3.2.6 Monitor loudspeaker(s) — (*optional for portable systems*) — The function of the monitor loudspeaker(s) is to allow the interpreters to remove their headsets temporarily and continue to follow the proceedings while the booth is 'silent'. The loudspeaker(s) shall reproduce the floor channel and be muted automatically as soon as one of the microphones in the same booth is activated; it shall have its own volume control.

3.3.2.7 Outgoing channel selection — In normal operation of a Multi-Channel Conference Interpretation System one language is assigned to each booth, that is one outgoing channel is operated from each booth.

However, there is frequently a need for two or more outgoing channels to be operated from the same booth. In such cases two or more language may be spoken in alternation via these outgoing channels. The control panel shall have the provision for selecting a minimum of two outgoing channels.

For these purposes two systems are in use:

a) *AB Selection*

- i) either one of the two channels (*A* or *B*) may be selected
- ii) the output channel is selected on the interpreters control console and the interpreters in that booth effect the transfer from *A* to *B* and *vice versa*.
- iii) preselection of channels *A* and *B* may be made either on the interpreters console or on the operators equipment.

b) *Multi-channel Selection*

- i) any channel may be selected
- ii) the output channel is selected directly on the interpreters' console by the interpreters

Occupied Channel Indication — Whenever a given out-going channel is operated in common by several booths (for example, interpretation into English from a French and a German booth) a visual indication is necessary, signalling occupancy of that channel. This visual indication shall appear on all interpreters panels, which have access to this channel, while an interpreter's microphone is activated on that channel. This indication (usually a LED), shall disappear as soon as the channel is cleared (that is no microphone active on the channel). In order to fulfil this function, the indicator shall light up as a result of microphone activation but not when selecting the outgoing channel.

Interlocking — If two or more channels are provided it may be desirable to provide an interlocking feature in order to prevent double occupancy of a given channel.

Language Symbols — Provision for language symbols should be provided close to the channel selector keys.

3.3.2.8 *Call channel to Chairman/Lecturer/Operator (optional for portable systems)* — In the event of breakdown in the proceedings (for example a delegate starting to speak without a microphone or other emergency) interpreters must be able to warn the chairman and/or lecturer discreetly via a special link terminating in a monitor loudspeaker. A special key shall activate this link regardless of the microphone switch position. It is desirable that this warning be transmitted also to the operator.

3.3.2.9 *Microphone activating key* — A microphone 'ON/OFF' switch controls the microphone link to the outgoing channel. If all interpreters' microphones, which have access to channel, are switched-off, the floor channel is automatically linked to this channel. On dual interpreters' consoles the microphone control may be combined in one single switch.

3.3.2.10 *Muting key* — A self-releasing key shall cut off the interpreter's microphone signal without switching back to the floor channel (see 3.3.2.9) but shall extinguish the microphone status indicator.

3.3.2.11 *Microphone status indicator* — For each microphone position a lamp or LED shall indicate the 'ON' status of the microphone.

3.3.3 *Interpreter's Console/Panel*

3.3.3.1 *Free-standing Console*

console width W	< 300 mm
	< 400 mm for dual console
console depth D	< 210 mm
console height H	< 150 mm
panel inclination α	< $10^\circ < \alpha < 45^\circ$
front height h	< 10 < $h < 50$ mm

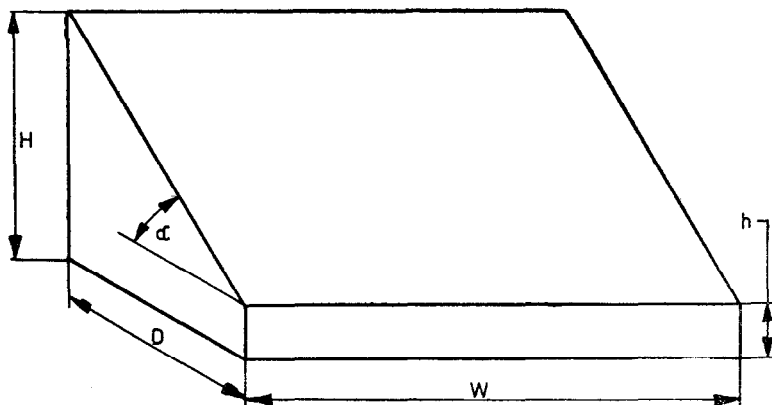


FIG. 5 FREE STANDING CONSOLE

3.3.3.2 Built-in panel

panel width W	< 300 mm
	< 400 mm with loudspeaker incorporated
	< 600 mm for dual panel
panel depth D	< 210 mm
panel inclination α	0° - 15°
built-in depth d_1	< 130 mm
d_2	< 40 mm

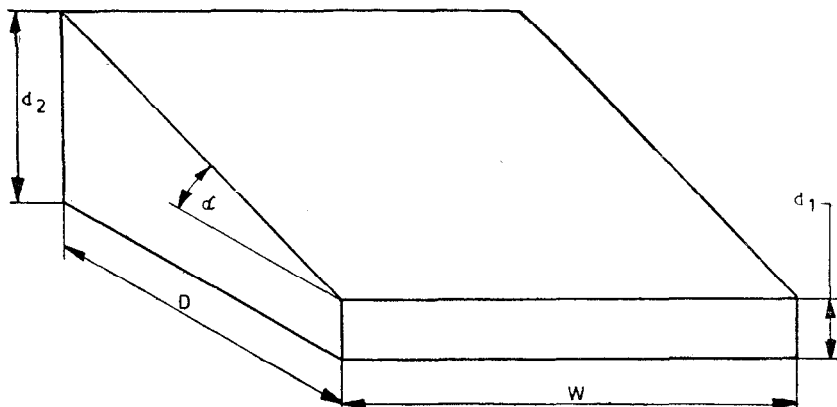


FIG. 6 BUILT-IN PANEL

3.3.4 Description of the Interpreter's Equipment

3.3.4.1 Listening (incoming) Section (for each interpreter)

- a) channel selector (**3.3.2.1**)
- b) channel pre-selector (**3.3.2.2**)
- c) volume control (**3.3.2.3**)
- d) tone control (**3.3.2.4**)
- e) headphone/headset connections (**3.3.2.5**)
- f) monitoring loudspeaker (**3.3.2.6**)
(at least one per booth, optional for portable systems)

3.3.4.2 Headphones/Headsets

- a) 2 supraural earphones per headphone
(the stethoscopic type with earpieces inserted into the ear or circumaural type of headphones are unacceptable)
- b) maximum weight : 150 g per headphone
250 g per headset
(with the exception of the cordset)
- c) flexible cordset with a length of 1.5 m, terminating in a non-locking plug (headphone)
- d) maximum contact pressure : 2.5 N
(adjustable pressure is recommended)

3.3.4.3 Speaking (outgoing) section

- a) outgoing channel selection (**3.3.2.7**)
- b) microphone activating key (**3.3.2.9**)
- c) muting key (**3.3.2.10**)
- d) microphone status indicator (**3.3.2.11**)

3.3.4.4 Microphones

- a) one unidirectional microphone for each interpreter or two unidirectional microphones for three interpreters for portable equipment.
- b) flexible cordset with a length of 1.5 m.
- c) effective insulation against mechanical vibration
- d) headsets (optional),
one headset for each interpreter (instead of headphone and microphone)

3.3.4.5 Other facilities

- a) call channel to chairman/lecturer/operator (**3.3.2.8**) (optional for portable equipment)
- b) call key for messenger (optional)

3.4 Delegates Listening Equipment (part of LDS equipment)

3.4.1 Listening Units — Two types of listening units exist : wired and wireless. Although various transmission technologies are available, only the following characteristics and elements are recognized:

3.4.1.1 Wired listening unit

- a) Positioning of unit on or integrated in conference table or chair,
- b) Ergonomic layout of controls
- c) Volume control
- d) Channel selector (not applicable for single channel use)
- e) Monitor loudspeaker for floor channel (optional).
- f) Headphone output sockets.

3.4.1.2 Wireless listening unit (receiver)

- a) Positioning on table and portable
- b) Ergonomic layout of controls
- c) Volume control
- d) Channel selector (not applicable for single channel use)
- e) Maximum weight : 200 g
- f) Minimum operational lifetime of a single charge or battery: 15 h

3.4.2 Headphones

For delegate headphones the following shall be considered:

- a) Delegate comfort
 - i) acoustical : quality of sound reproduction and ambient noise insulation
 - ii) physical : weight and reliability
 - iii) hygiene : shall be observed
 - iv) matching : electroacoustical transducer shall match electrically and mechanically with the system.
- b) The cordset shall be longer than 80 cm.

NOTE — Examples of types of headphones which can be used are given in 2.2.

3.5 Technicians Equipment

3.5.1 *Survey of Technicians' Equipment*

The technicians' booth may contain:

- a) control equipment according to 3.5.3 and/or equipment rack,
- b) microphone for the call-channel to the chairman, according to 3.3.4.4,
- c) headphones/headset according to 3.3.4.2,
- d) sound recording equipment,
- e) audio-visual equipment, and
- f) public-address equipment.

3.5.2 *Technicians' Booth*

3.5.2.1 The technicians' booth, if provided, shall correspond to an interpreters' booth as specified in Indian Standard on 'Booths for simultaneous interpretation — General characteristics and equipment' (*under preparation*) with provisions for a sliding front window.

3.5.2.2 Conference facilities with built-in interpreters' booths, with or without permanent equipment, shall have at least one technicians' booth. In all other cases (semi-permanent or mobile booths), with or without permanent equipment, it is recommended to have a built-in technicians' booth. If this is not possible, sufficient room area shall be provided.

3.5.3 *Control Equipment*

3.5.3.1 The control equipment enables the technician to monitor and control all microphone and interpretation system — functions in the conference room as dictated by the conference proceedings and by the chairman.

3.5.3.2 Call channels may be available from the interpreters to the technician and from the technician to the chairman/lecturer.

3.5.4 *Microphone Operation Mode* — The following microphone operation modes may be used:

- a) The delegate or the technician can activate a microphone by a push-button at the microphone position, or by the control equipment (i.e. a dual control system).
- b) The delegate has a 'request floor' button, which signals the technician, but the latter retains control of microphone activation
- c) Only the technician can operate the microphone
- d) An automatic queue and switching sequence system
- e) Chairman's microphone can operate with or without priority.

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3.5.5 Status Monitoring — On the control equipment the following functions can be monitored:

- a) Individual requests and activated microphone(s) of the delegates
- b) whether the interpreters' booth or the floor channel is linked to the language channel.

3.5.6 Audio Monitoring

- a) By headphone and eventually in addition by loudspeaker of all channels.
- b) By programme level indicators (optional for automatic controlled systems), continuously indicating the level of the floor channel and having possibilities to indicate the level of each interpreters channel.

3.5.7 Volume Control — The volume of each channel shall be controllable separately (not for systems with automatic volume control).

3.5.8 Auxiliaries

- a) Auxiliary input facilities may be provided for additional sources, for example additional microphone systems, tape recorders, sound tracks from film or video.
- b) Auxiliary output facilities may be provided, for example to connect the floor channel to a public address system, to connect one or more channels to broadcast facilities, to connect all channels to recording equipment.